

CLAIMS

- 1 A material for use in covering objects for microwave heating comprising a substrate substantially transparent to microwave radiation bearing an array of low emissivity metal patch elements defining a frequency selective surface adapted to pass microwave radiation and reflect thermal infrared radiation, the characteristic dimension of said patch elements being no greater than about 1600µm, the average spacing between said patch elements being no greater than about 200µm and the combined emissivity of the substrate and patch elements being no greater than about 0.8 in the thermal infrared waveband.
- 2 A material according to claim 1 wherein said array is substantially transparent to radiation in the region of 2.45 GHz.
- 15 3 A material according to claim 1 or claim 2 wherein the characteristic dimension of said patch elements is no greater than about 500µm and the average spacing between said patch elements is no greater than about 100µm
- 20 4 A material according to any preceding claim wherein the combined emissivity of the substrate and patch elements is no greater than about 0.4 in the thermal infrared waveband.
- 25 5 A material according to claim 4 wherein the combined emissivity of the substrate and patch elements is no greater than about 0.2 in the thermal infrared waveband.
- 6 A material according to any preceding claim wherein said substrate comprises a film of polyester, polypropylene, polyethylene or nylon.
- 7 A material according to any preceding claim wherein said patch elements are composed of aluminium, copper, gold, titanium or chromium.
- 30 8 A material according to any preceding claim wherein said patch elements are in the shape of squares, rectangles, hexagons, circles or crosses.
- 35 9 A packaging material for microwavable foodstuff comprising a material according to any preceding claim.

10 10 A package for microwavable foodstuff comprising a material according to any one of claims 1 to 8.

11 5 A packaged microwavable foodstuff wherein the package comprises a material according to any one of claims 1 to 8.

12 10 A bandage or patch adapted to be worn on the body comprising a material according to any one of claims 1 to 8.

10 13 13 A method of heating an object which comprises covering the object with a material according to any one of claims 1 to 8 and exposing the material to microwave radiation.

14 15 14 A method of manufacturing a material according to any one of claims 1 to 8 which comprises: taking a material comprising a substrate substantially transparent to microwave radiation upon which is vacuum deposited a continuous metal foil; applying an etch-resistant substance to the metal foil in patches corresponding to said array; and chemically etching away the metal exposed between the patches of etch-resistant substance.

20 15 20 A method of manufacturing a material according to any one of claims 1 to 8 which comprises vacuum depositing a metal onto a substrate substantially transparent to microwave radiation through a mask with a pattern corresponding to said array.

25 16 25 A method of manufacturing a material according to any one of claims 1 to 8 which comprises: taking a material comprising a metal foil with a heat-sensitive adhesive backing; bonding said foil to a substrate substantially transparent to microwave radiation with a heated stamp having a pattern corresponding to said array; and removing the portions of said foil left unbonded by said stamp.